

Product Bulletin

Bulletin Number: P-2002-1585-Global

Issue: 1.01

Date: 29 October 2002

IP Line 3.0

For Meridian 1 and Succession CSE 1000 Release 1.1 Systems

Introduction

Nortel Networks is pleased to announce the introduction of the IP Line 3.0 application for Meridian 1 and Succession CSE 1000 Release 1.1. IP Line 3.0 introduces several new and improved features along with the support of the new Succession Media Card (SMC) platform, a 32-port card.

With the robust feature set of a traditional digital telephone coupled with simplified management and operational efficiencies, IP Telephony provides the customer with choice and flexibility in providing telephony services to campus & distributed users.

The IP Line 3.0 application is fully compatible with the Succession CSE 1000 Release 2.0. Refer to the Succession Communication Server for Enterprise 1000 Release 2.0 Product Bulletin for more information.

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Product Description

Overview

The IP Line 3.0 application improves upon the previous version of the IP telephony application (ITG Line 2.2 application) by introducing new functionalities and enhancements such as:

- Support for the new Succession Media Card (SMC) platform
- New end-user features:
 - Support for IEEE 802.1 p/Q (VLAN and setting of priority bits)
- Additional administration and supportability features:
 - Patching Tool
 - Data Path Capture Tool
 - Graceful TPS Disable
 - Firmware Download
 - Run-time Download
 - Maintenance Audit Enhancements
 - Watchdog Timer
 - Improved Login Banner and Password Guessing Protection

Note: An ITG-Pentium (ITG-P) Line Card or a Succession Media Card (SMC) with the IP Line 3.0 application installed is known as a Voice Gateway Media Card.

Support for the New Succession Media Card (SMC) Platform

For more information on the SMC, refer to page 6 of this document.

IEEE 802.1 Q

With IP Line 3.0, the Internet Telephone (i2004 and the i2050) will support VLAN and priority tagging of IP Voice packets to/from other Internet Telephones.

802.1 Q – VLAN ID

- Helps provide a higher level of security between segments of internal networks. It is used to break larger networks into smaller parts to prevent consumption of bandwidth by broadcast and multicast traffic. Allows a phone and PC sharing the same Ethernet segment to reside on different logical networks (L2 broadcast domain and L3 subnet).

802.1 p – Priority Bit Setting

- Provides priority classification and tagging of VoIP packets at layer 2 (Ethernet).

Patching Tool

The new patching tool now provides the ability for the IP Line application on the ITG-P Card and Succession Media Card platforms to be patched or fixed without having to upgrade the card loadware to a new version and without disrupting service.

Data Path Capture Tool

IP Line 3.0 contains the Data Path Capture tool, a built-in utility used to capture audio information. This tool will help in trouble-shooting audio-related problems through the gateway.

Graceful Line TPS Disable

A new command has been introduced in IP Line 3.0 that will prevent new Internet Telephones from registering onto the particular Voice Gateway Media Card requiring servicing (an ITG-P Line Card or a Succession Media Card with the IP Line 3.0 application installed is known as a Voice Gateway Media Card), and will cause idle, registered Internet Telephones to undergo a soft reset.

Since the IP Line Terminal Proxy Server (TPS) running this command will not accept new registrations, after a reset, the Internet Telephones will register with a different card's Line TPS. Eventually, all Internet Telephones will register with other IP Line Card TPSs and the (now disabled) card can safely be removed

without impact to any users. This effectively allows maintenance and software updates to be performed on the IP Line Card without interruptions of service.

Firmware Download

Improvements and enhancements have been added to the firmware download process.

Run-time configuration changes

IP Line 3.0 adds the ability for most changes to be made without disabling or rebooting the card.

Maintenance Audit Enhancements

The ITG Line 2.2 product on the ITG-P Card introduced a background audit that watched for tasks that went into a suspended state (under normal operation, a task should not go into suspended state, however, if it occurs, the card's processing is affected). When a task went into a suspended mode, the Audit tool would then perform specific tasks in an attempt to re-instate the task.

With the Maintenance Audit enhancement, the Audit tool is now able to differentiate between maintenance tasks that are critical and non-critical

- A critical task is any task that the IP Line application needs in order to function. When a critical task is not functioning properly, it causes noticeable degradation in the IP Line application.
- A non-critical task is any other task that does not cause noticeable degradation to the IP Line application.

Depending on whether the task suspended is critical or not, the Audit tool will act accordingly.

Watchdog Timer

A hardware watchdog timer on the ITG-P Line Card and Succession Media Card now performs a hard reset on the card if the main CPU stops responding. This functionality adds another level of robustness to the already existing exception handler and maintenance task audits.

Improved Login Banner and Password Guessing Protection

The Login Banner has been updated to be more consistent with other products of the Meridian/Succession IP Portfolio. Additionally, a Password Guessing Protection enhancement has been added to increase the Voice Gateway Media Card access security. A user attempting to log in by guessing passwords will be refused access after three successive attempts.

Succession CSE 1000 Release 2.0 Features

The following CSE 1000 Release 2 features are supported by IP Line 3.0, but are not currently available to Meridian 1 and CSE 1000 Release 1.x users:

- i2002 Internet Telephone (the i2002 will be available on Meridian 1 in 1Q03)
- Signaling Server
- Corporate Directory
- Call Statistics Enhancements
- User-defined Feature Key Labels
- Private Zones

For more information on Succession CSE 1000 Release 2.0, refer to the “Succession Communication Server for Enterprise 1000 Release 2” Product Bulletin

System Requirements

IP Line 3.0 requires Meridian 1 X11 software Releases 25.15*, 25.30, 25.40, 25.40B.

Note: * Meridian 1 Rel 25.15 is supported only in the following regions: Europe, Middle East, and Africa (EMEA).

The i2050 software telephone requires X11 R25.40 or R25.40B.

IP Line 3.0 requires Succession CSE 1000 Release 1.1.

The following table outlines the new features available for different systems.

Feature	CSE 1000 Rel 2.0	CSE 1000 Rel 1.1	Meridian 1 Rel 25.40 Meridian 1 Rel 25.40B Meridian 1 Rel 25.30 Meridian 1 Rel 25.15 *
Support of the i2002 Internet Telephone	Yes	No	No
Support for i2002/i2004 firmware version 1.3x	Yes	Yes (i2004 only)	Yes (i2004 only)
Succession Media Card Platform	Yes	Yes	Yes
Support for Signaling Server	Yes	No	No
NAT enhancement	Yes	Yes	Yes
Patching	Yes	Yes	Yes
802.1Q	Yes	Yes	Yes
Corporate Directory	Yes	No	No
Data Path Capture tool	Yes	Yes	Yes
CSE Element Management support	Yes	No	No
Call statistics enhancements	Yes	No	No
User-defined Feature Key Labels	Yes	No	No
Private Zone	Yes	No	No
Graceful TPS Disable	Yes	Yes	Yes
Firmware download	Yes	Yes	Yes
Run-time download	Yes	Yes	Yes
Maintenance Audit Enhancement	Yes	Yes	Yes
Watchdog Timer	Yes	Yes	Yes
Improved Login Banner and Password Guessing Protection	Yes	Yes	Yes

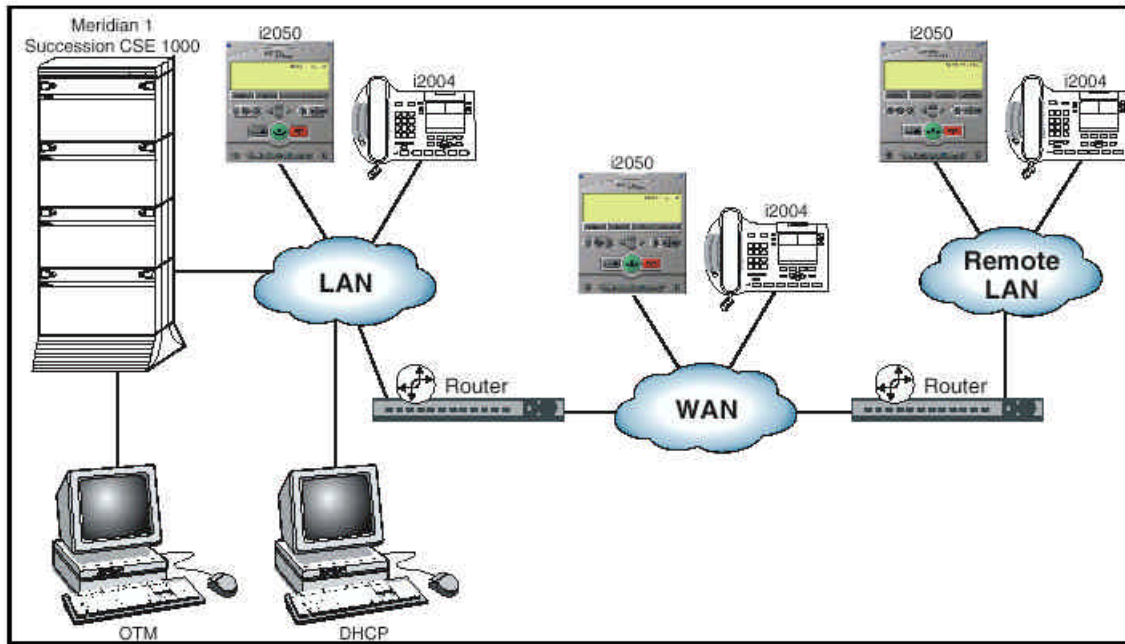
Note: * Meridian 1 Rel 25.15 is supported only in the following regions: Europe, Middle East, and Africa (EMEA).

System Configuration

Overview

In Meridian 1 and Succession CSE 1000 Rel 1.1 configurations, there is no Signaling Server in the system (as is the case in a Succession CSE 1000 Release 2.0 system). Each ITG-P Line Card and Succession Media Card functions as both a Terminal Proxy Server (TPS) and voice gateway. Since there is no Signaling Server in the system, the TPS functionality is on the card just as it is with ITG Line 2.0-2.2. In this configuration, one card is configured as the Leader and Internet Telephones register with individual Voice Gateway Media Cards. The following figure shows a diagram of the Meridian 1 (or Succession CSE 1000 Release 1.1) system.

Meridian 1 and Succession CSE 1000 Rel 1.1 System Architecture



Upgrades and Expansions of Existing Systems

Upgrading or expansion of existing systems requires that the ITG-P and/or SMC cards of these systems are upgraded to IP Line 3.0. The IP Line 3.0 application is available free of charge from the Nortel Networks Electronic Software Delivery web site (refer to page 11 for software downloading procedures).

Succession Media Card (SMC)

IP Line 3.0 introduces the single slot-width NTVQ01BA Succession Media Card. As with the ITG-P IP Line card, the SMC plugs into the slot of a shelf of a Meridian 1 or Succession CSE 1000 System.

The ITG-P Line card (NTVQ55AA) occupies two slots while the Succession Media Card (NTVQ01BA) occupies only a single slot. The Succession Media Card introduces the following features:

- Increases the channel density from 24 to 32 ports (for 32-port version).
- Reduces the slot count from a dual slot to a single slot.
- Supports up to 128 Internet Telephones for 32-port version.
- Improved indicator LED's that show status for both ELAN (management) and CLAN (user/service).
- Introduces improved cabling that is easier to install.

The following table provides a comparison of the ITG-P Line Card and Succession Media Card.

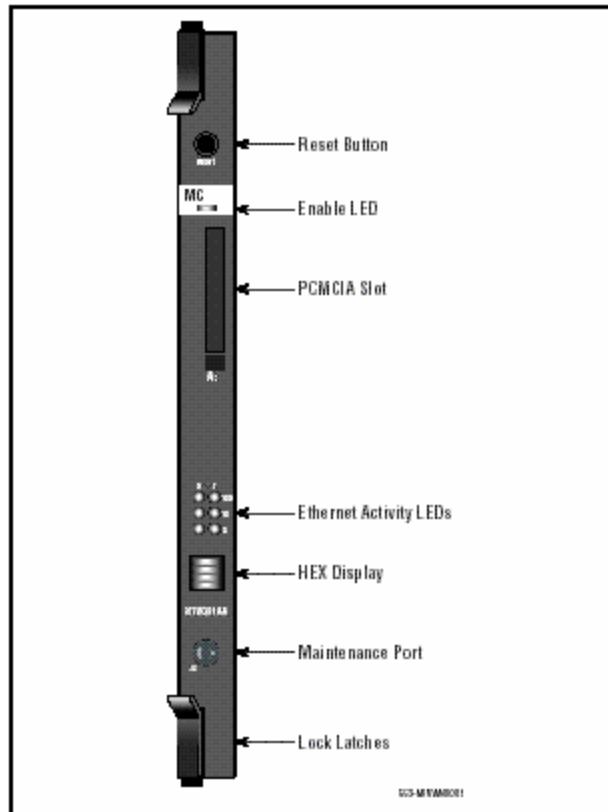
Comparison of ITG-P Line Card and Succession Media Card

Item	ITG-P Line Card	Succession Media Card (32 port)
Total DSP Channels	24	32
Number of slots the card occupies	2	1
Operating System	VxWorks 5.3	VxWorks 5.4
Processor	Pentium	IXP1200
DSP	8 x TI5409	4 x TI5421
Telogy version	7.01	8.1 High Density version (8 ports for each DSP)
Number of Internet Telephones on each Voice Gateway Media Card	96	128
Image file name prefixes shown by swVersionShow command	IPL P	IPL SA
/C: drive	On board Flash 2 x 4Mb	Plug-in CompactFlash 16Mb
Upgrade	Two images files	One image file (no backup)

Succession Media Cards have different types of firmware pre-installed, depending on the application being supported. Succession CSE 1000 introduces a Voice Gateway application which enables Digital Signal Processors (DSPs) to serve both line and trunk applications. When the Voice Gateway application is installed on the Succession Media Card, the card is called the Voice Gateway Media Card. Other examples of applications on a Succession Media Card include IP Line 3.0, IP Trunk and MIRAN3.

Note that the NTVQ01BA is only available as a package NTDU40BA, which also includes the necessary software license fees. For Meridian 1 systems, the NTDU40BA is bundled along with the CompactFlash and software and is available as NTDU41CA.

An NTVQ01BA Succession Media Card is shown below.



The NTVQ01BA Succession Media Card provides faceplate and backplane interfaces, which are used to connect to external data networks. See the NTP Circuit Card Reference 553-3023-211 for more details.

QoS and Bandwidth Management

The use of Meridian IP Line, Meridian IP Trunk, and 802.11 Wireless IP Gateway products in the same Meridian Internet Enabled or Succession CSE system is a supported configuration; however an engineering analysis of all aspects of the deployment is necessary to ensure the customer's end to end Quality of Service expectations are met.

The IP Line 3.0 application supports a range of compression algorithm standards. The Codecs supported are G.711, G.729A, and G.729AB with a variety of packet sizes and number of frames per packet. These compression levels are configurable by the system administrator using Optivity Telephony Manager (OTM) to more efficiently manage Quality of Service (QoS) and bandwidth usage. Each i2004 Internet Telephone and Voice Gateway Media Card port can be assigned to bandwidth management zones by the system administrator to allow selection of codecs and policies to fit the specific implementation.

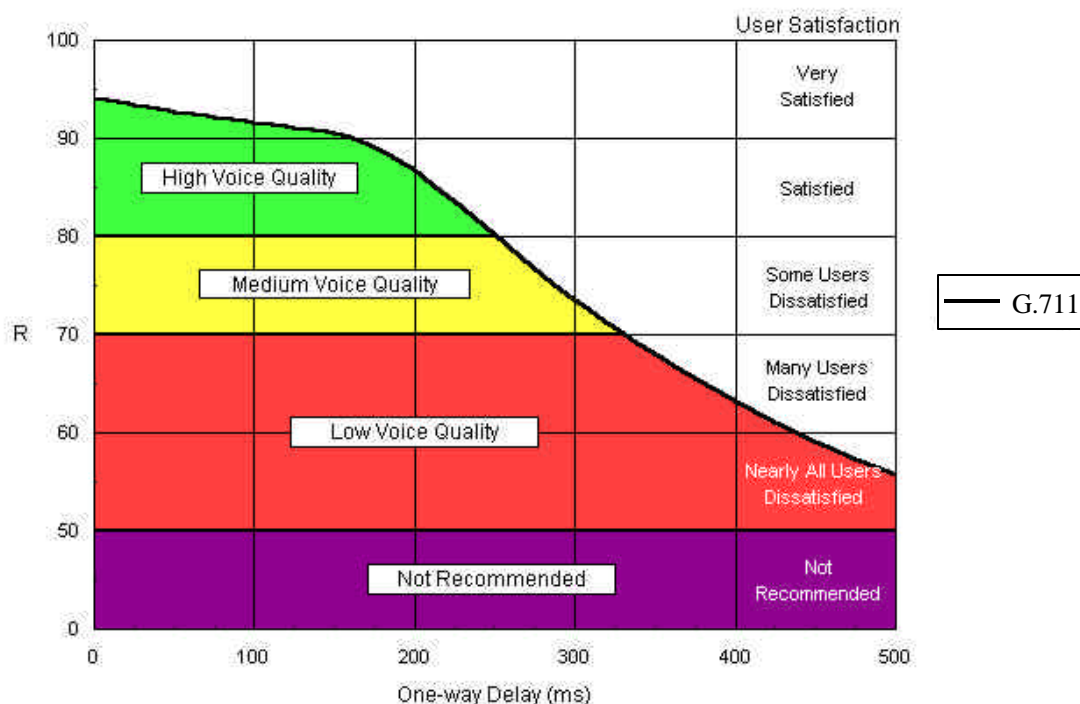
In addition, the i2004 and Voice Gateway Media Card support standards-based Quality of Service (QoS) with IP Type of Service (TOS) and IETF-defined Differentiated Services (DiffServ), allowing organizations to prioritize and expedite both voice and data traffic to ensure clear voice communications throughout the enterprise. Within the IP Line 3.0 NTP (553-3001-204), detailed Engineering Guidelines are available to assist administrators with effective analysis of their data networks.

The perceived quality of a telephone call is dependent on many factors, such as; codec characteristics, end-to-end delay, packet loss, etc. as well as the perception of the individual listener.

The E-Model Transmission Planning Tool is a model used to produce a quantifiable measure of voice quality based on relevant factors. Refer to two ITU-T recommendations, ITU-T E.107 and E.108 for more information on the E-Model and its application.

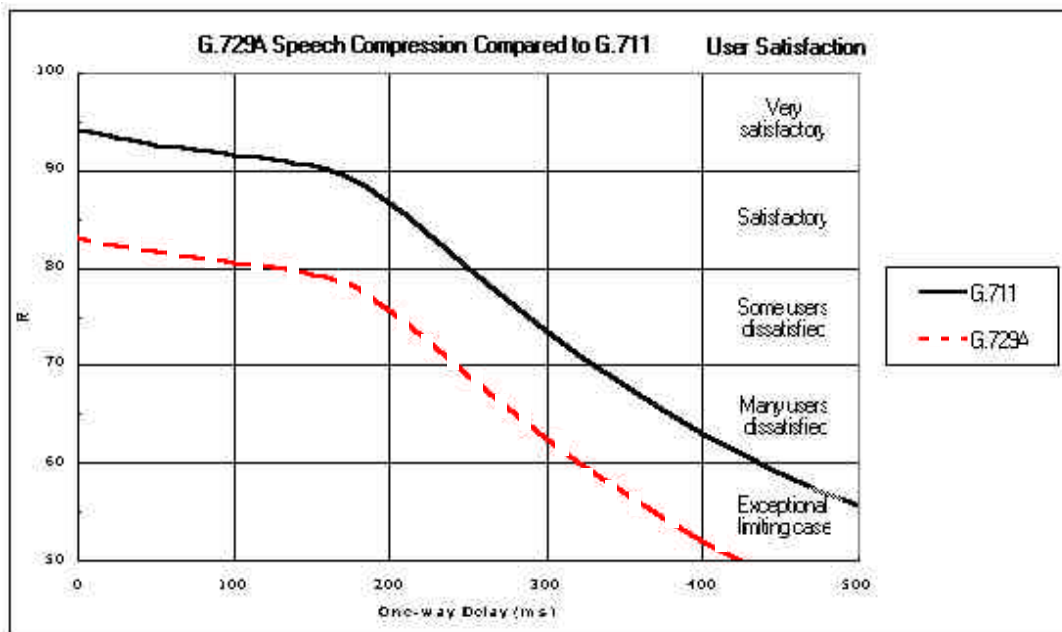
The output of the E-Model is a quantity called the “Rating Factor”, or simply R . The scale is typically from 50 to 94, where everything below 50 is clearly unacceptable and everything above 94 is unobtainable in narrowband telephony.

Delay is the most significant impairment in IP telephony. A useful way to show the relationship between delay and user satisfaction is plot a graph with end-to-end delay on the X-axis and R on the Y-axis. Using this format, the Figure below shows the curve for G.711 with the Voice Quality Categories below the curve and the “User Satisfaction” categories defined in ITU G.109 on the right-hand side. For example, G.711

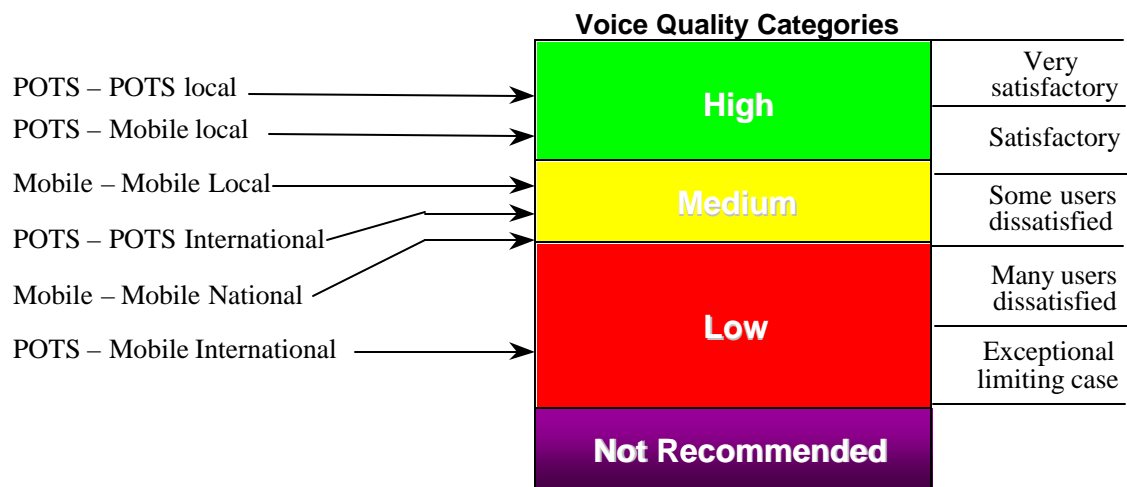


drops from the “High” to “Medium” category at about 250 ms ($R = 80$). G.711 has no impairment and this curve represents the best-possible narrowband performance. As you progress along the curve dynamics of conversation begin to break down as the delay affects turn-taking, the ability to interrupt and subtle things like truthfulness, intelligence, and attentiveness. Once introduced, delay cannot be removed.

The next Figure shows the effect of speech compression by comparing the performance of G.729A to G.711. G.729A has a greater impairment, which has the effect of lowering the G.729A curve by relative to the G.711 curve. Think of the Y-axis as the distortion axis. Adding distortion means the one-way delay for a given R is reduced. For instance, at $R = 70$ the delay available to G.729A is about 80 ms less than G.711 and at $R = 80$ the delay available to G.729A is about 120 ms less than G.711. Speech compression means: more distortion, less available delay.



The figure below attempts to show a reference between the voice quality categories and something we are familiar with. The above diagrams are examples and do not account for all of the impairments that are



involved when deploying voice on a data network. When implementing voice over IP it is important to choose the quality that you want and then engineer the complete solution to ensure you get the quality that you choose. There are many factors such as codec, end-to-end delay, packet loss, packet size, jitter, etc. that must be considered to accurately specify the overall network performance. The ITU E-Model is a good method to account for and combine all of the factors in a particular implementation to obtain an objective transmission rating.

IP Line, IP Trunk, and 802.11 Wireless IP Gateway products will influence overall voice quality and any impairments are additive and therefore careful consideration must be given to all factors that influence voice quality prior to provisioning a solution in a customers network.

System Management Requirements

OTM Release 2.0 is required to configure and administer the IP Line 3.0 application.

For further information on OTM please refer to the OTM 2.0 General Release Bulletin and Product Bulletin.

Software/Loadware Delivery

The IP Line 3.0 loadware is delivered through the following formats:

CompactFlash:

A programmed CompactFlash is shipped along with every IP Line 3.0 system package (NTDU41CA). The CompactFlash must be installed onto the Succession Media Card before plugging the SMC into the shelf.

Downloadable from the Nortel Networks Web site:

The IP Line 3.0 application loadware for both ITG-P and SMC hardware platforms is available to existing ITG Line and IP Line customers free of charge and is retrievable from the Nortel Networks Electronic Software Delivery (ESD) web site. To access this web site, follow these instructions:

1. Access the www.nortelnetworks.com web site.
2. Select "Software Downloads" from the "Support" section. You will need to log on to gain access.
3. Under "Advanced Search: (located on the right), select "Search".
4. In the Search field, type in "*IP Line 3.0*". **Ensure only the Software selections have been selected (default is All Selected).**
5. Select the [IP Line 3.0 Application](#) link and download the file.

Follow the instructions found in the IP Line 3.0 Readme First document and in the IP Line Description, Installation and Operation NTP (553-3001-204) to upgrade the system.

Note:

- The Internet Telephone firmware is bundled along with the IP Line 3.0 application loadware.
- IP Line 3.0 loadware is not available through CD-ROM delivery.

Documentation

Documentation for IP Line 3.0 is shipped on a separate CDROM (NTDW81AD) included with the IP Line 3.0 System package. Additional documentation CD-ROMs are also available as separately orderable items. The CD-ROM (NTDW81AD) contains electronic, printable copies of the following documents:

- IP Line Description, Administration and Operation (553-3001-204)
- Internet Terminals Description (553-3001-217)
- i2002 Quick Reference Card
- i2002 End-User Documentation
- i2004 Quick Reference Cards
- i2004 End-User Documentation
- i2050 User Documentation

Additional user guides may be purchased using the order codes shown in the following table:

Succession IP Line 3.0 / Voice Gateway NTP (CD-ROM)	NTDW81AD / A0894596
Succession IP Line 3.0 / Voice Gateway Internet Telephone User Guides & Quick Reference Cards (CD-ROM)	NTDW85AA / A0896715

On-Line Documentation

All NTPs can also be accessed on the Nortel Networks web site, at <http://www.nortelnetworks.com/helmsman>

Free registration is required for access.

In addition, this site will be posting monthly "Release Notes", which will detail changes to existing NTPs made as a result of customer input and internal testing. These will accumulate until the following full up-issue of the relevant documents.

Training and Support

Training

IP Line 3.0 content has been added to the "Course 0399C - IP Line and the Internet Terminals". It is a three-day trainer lead session. Call 1-877-662- 5669 or visit <http://www.nortelnetworks.com/td> for more information.

The topics covered in course 0399C are:

- IP Line Overview
- IP Line - Description
- Installation of IP Line Card
- Operation, Administration, and Maintenance for IP Line
- Internet Terminals - Description
- Installation of the Internet Terminals
- Operation, Administration, and Maintenance for Internet Terminals
- Resources

Training - EMEA

There is a 3-day Leader-led course, course number **25096A**, which covers both the ITG Lineside and Trunkside applications. IP Line 3.0 is now included in this course.

Support

Support services for IP Line 3.0 are the same as those provided for Meridian 1 core products.

Technical Specification

	ITG-P	SMC
Meridian 1 System Compatibility:	Meridian 1 Options 11C Mini, 11C, 51C, 61C, and 81C* * includes all CP3, CP4, CPP	Meridian 1 Options 11C Mini, 11C, 51C, 61C, and 81C* * includes all CP3, CP4, CPP
Succession CSE System Compatibility	Succession CSE 1000	Succession CSE 1000
Line Card Port Capacity	24 ports per card; 2-slot card; supports up to 96 configured i2004 / i2050 users	32 ports per card; Single slot card; supports up to 128 configured i2004 / i2050 users
MTBF	The ITG-P card MTBF is 46 years. Failures per 10 ⁶ hours of operation are 2.483, based on 40 degrees C (140 degrees F).	The SMC card MTBF is 69 years. Failures per 10 ⁶ hours of operation are 1.4, based on 40 degrees C (140 degrees F).
Physical Location:	Meridian 1 IPE shelf, occupying 2 slots	Meridian 1 IPE shelf, occupying 1 slot

Software Requirements:	X11 Release 25.15 Release 25.30 or later with packages 88 (Digital Set Package –DSET) and 170 (Aries Terminal Package – ARIES) enabled. X11 Release 25.40 or later or Succession CSE 1000 Release 1.1 is required for i2050 Software Telephone, the shift key functionality, and to use TCP as the transport protocol on the ELAN.	X11 Release 25.15 Release 25.30 or later with packages 88 (Digital Set Package –DSET) and 170 (Aries Terminal Package – ARIES) enabled. X11 Release 25.40 or later or Succession CSE 1000 Release 1.1 is required for i2050 Software Telephone, the shift key functionality, and to use TCP as the transport protocol on the ELAN.
ISM Software Parameters:	One ISM Parameter must be purchased for every i2004 Internet Telephone or i2050 Software Telephone supported by a Meridian 1 system or Succession CSE1000.	One ISM Parameter must be purchased for every i2004 Internet Telephone or i2050 Software Telephone supported by a Meridian 1 system or Succession CSE1000.
System Administration:	Requires OTM 2.0 or later. i2050 configuration is managed through OTM 2.0. Alarm Management required to view SNMP alarm traps	Requires OTM 2.0 or later. i2050 configuration is managed through OTM 2.0. Alarm Management required to view SNMP alarm traps
Supported Codecs:	G.711, G.729A, G.729AB	G.711, G.729A, G.729AB
PC Card:	8MB capacity Flash card (optional)	8MB capacity Flash card
Environmental Requirements:	Same as Meridian 1 equipment	Same as Meridian 1 equipment
Meridian 1 Interfaces:	Ethernet Voice Port, Ethernet Management Port, Serial Management Port, DS-30 Signaling, Card LAN	Ethernet Voice Port, Ethernet Management Port, Serial Management Port, DS-30 Signaling, Card LAN
LAN Connectivity:	10/100 BaseT for i2004 connection to LAN; 10/100 BaseT connection for ITGP card to TLAN for voice transmission; 10 Base T connection for ITGP card to ELAN for administration; 10 BaseT connection from the Meridian 1 to the router (IP version 4)	10/100 BaseT for i2004 connection to LAN; 10/100 BaseT connection for SMC card to TLAN for voice transmission; 10 Base T connection for SMC card to ELAN for administration; 10 BaseT connection from the Meridian 1 to the router (IP version 4)
Power Requirements:	ITGP cards are powered via the IPE shelf. Internet Telephones are powered via one of: <ul style="list-style-type: none"> • 16 VAC, 500 mA wall transformer • Internet Telephone Switch Module • Power over LAN Hub™* • BayStack 460-24TPWR* * Requires a splitter cable	Succession Media Card – 32 port cards are powered via the IPE shelf. Internet Telephones are powered via one of: <ul style="list-style-type: none"> • 16 VAC, 500 mA wall transformer • Internet Telephone Switch Module • Power over LAN Hub™* • BayStack 460-24TPWR* * Requires a splitter cable

System Capacity

While few systems reach the maximum capacities listed for fully expanded systems, it is important to provide capacity guidelines for Meridian 1 systems on a range of call processors. It is well documented that the largest 8 group 81C with Call Processor Pentium can support 16,000 ports, including analog and digital telephones. With the introduction of the i2004/ i2050, it is likely that Internet Telephones will provide a portion of the total mixture of terminals on any system. Nortel Networks intends to be conservative in its

initial recommendations with the expectation of increasing system capacities gradually until the full complement of any set-type (IP, digital or analog) in any combination can be deployed to documented maximum system capacities.

ITG-P and SMC Card per System Capacity

Refer to the IP Line Guide NTP (553-3001-204) for details on card capacity per system.

i2004 / i2050 Internet Telephones per card

Maximum of 96 sets supported per ITG-P card and 128 set per SMC card.

i2004 / i2050 Internet Telephones per Meridian 1 system

The Option 11C or 11C Mini will initially support 640 i2004 / i2050 Internet Telephones.

The capacity for larger systems is typically determined by engineering traffic capacity and IPE slot usage, however the following guidelines must be used initially for system c configurations.

CP 2	640	CP3	1000
CP 4	1000	Pentium II	2000

i2004 / i2050 Internet Telephones per Succession CSE1000 system

CSE 1000 Rls 1.1 supports 640 i2004 / i2050 Internet Telephones.

Mean Time Between Failure (MTBF)

The ITG-P card MTBF is 46 years. Failures per 10^6 hours of operation are 2.483, based on 40 degrees C (140 degrees F).

The SMC card MTBF is 69 years. Failures per 10^6 hours of operation are 1.4, based on 40 degrees C (140 degrees F).

Ordering Guidelines and Procedures

IP Line 3.0 Application - North American and CALA

To simplify the ordering procedure, a base system package has been created. This package includes the SMC Card along with the CompactFlash (programmed with the IP Line 3.0 application), required cables, Technical documents (NTP) and User Guides on CD-ROM.

Order codes and pricing are published in the Meridian Product Catalogue. The effective date is October 28, 2002. The Meridian 1 Product Catalogue covers both new systems and expansions of existing systems.

This package does not include OTM 2.0, RM356 modem router, i2004 Telephones, i2050 software telephone clients, USB Audio Kits, or headsets. All of these items are ordered separately.

Succession Media Card 32 Port – IP Line 3.0 Voice Gateway – Meridian 1	NTDU41CA (A0888747)
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The following components are part of the IP Line system package:

Package Description	Code	Qty
Succession Media Card 32 Port	NTDU40BA	1
Readme First Document	P0990172	1
PC Maintenance Cable	NTGA81CA	1
Succession IP Line 3.0 Voice Gateway CompactFlash	NTM403AA	1
Shield 50 Pin to Serial/ELAN/TLAN adaptor	A0852632	1

ITG EMC Shielding Kit	NTVQ83AA	1
Succession IP Line 3.0 Voice Gateway NTP (CD-ROM)	NTDW81AD	1
M1 Backplane to 50 pin I/O Panel Mounting Connector	NTCW84JA	1

IP Line 3.0 Application – Europe, Middle East & Africa (EMEA) and Asia Pacific (AP)

NetPrice Ordering

The items below are the NetPrice Functional codes for the EMEA and AP market for Meridian systems. The NetPrice Functional codes for Succession CSE 1000 Release 2.0 systems are covered in the Succession CSE 1000 Release 2.0 Product Bulletin.

New System Codes - Meridian		
NTHZ18AA	A0817429	8 General Services IP Line Extensions
NTHZ19AA	A0817430	8 Enhanced Services IP Line Extensions
NTHZ20AA	A0817431	8 Call Centre Services IP Line Extensions
NTHZ21AA	A0817432	8 Enhanced Call Centre Services IP Line Extensions
NTHZ22AA	A0817433	8 Networking Services IP Line Extensions
NTHZ23AA	A0817434	8 Enhanced Networking Services IP Line Extensions
NTHZ24AA	A0817435	8 Enterprise Services IP Line Extensions
NTHZ25AA	A0817436	8 Unified Networking Services IP Line Extensions

These codes will provide the following:

- ISM's to enable 8 IP Telephone users on the X.11 code
- IP Line 3.0 hardware as necessary to support 8 new users. The new hardware is provisioned on the basis of 128 users and 32 DSP channels per card. This gives a ratio of one DSP channel per four users.

Additional Simultaneous Calls -		Meridian
NTHZ26BA	A0897871	Meridian 1 Additional Voice Media Gateway Channel Capacity

Order as required in increments of 32. This code provisions additional IP Line 3.0 hardware specifically for the 32 DSP channels that it contains, and system slot space as required. For every 32 DSP channels requested an IP Line 3.0 card is provisioned.

Note that with every IP Line 3.0 card which is provisioned with the New and/or Expansion codes the user automatically gets 32 channels of DSP. The Additional Simultaneous Calls code is used where the ratio of four users per DSP channels is not sufficient e.g. a Call Center environment.

Expansion Codes - Meridian		
NTHZ28AA	A0817487	Expansion 8 General Services IP Line Extensions
NTHZ29AA	A0817488	Expansion 8 Enhanced Services IP Line Extensions
NTHZ30AA	A0817489	Expansion 8 Call Centre Services IP Line Extensions
NTHZ31AA	A0817490	Expansion 8 Enhanced Call Centre Services IP Line Extensions
NTHZ32AA	A0817491	Expansion 8 Networking Services IP Line Extensions
NTHZ33AA	A0817492	Expansion 8 Enhanced Networking Services IP Line Extensions
NTHZ34AA	A0817493	Expansion 8 Enterprise Services IP Line Extensions
NTHZ35AA	A0817494	Expansion 8 Unified network Services IP Line Extensions

These codes will provide the following :

- ISM's to enable 8 IP Telephone users on the X.11 code, sold in increments of 8 users.

- IP Line 3.0 hardware as necessary to support each increment of 8 users. The new hardware is provisioned on the basis of 128 users and 32 DSP ports per card. This gives a ratio of one DSP channel per four users.

Separately Orderable Merchandise Codes

The following table lists items that are separately orderable:

Item Description	PEC	CPC
Succession Media Card 32 Port (spare)	NTDU40BA	A0888759
Blank Compact Flash Card (16MB)		A0859610
ELAN, TLAN, RS232 L-Adapter		A0852632
ITG EMC Shielding Kit	NTVQ83AA	A0870556
PC Maintenance Cable	NTAG81CA	A0655007
M1 Backplane to 50 pin I/O Panel Mounting Connector	NTCW84JA	A0783483
Succession IP Line 3.0 Voice Gateway NTP (CD-ROM)	NTDW81AD	A0894596
Succession IP Line 3.0 Voice Gateway Internet Telephone User Guides & Quick Reference Cards (CD-ROM)	NTDW85AA	A0896715

i2004 Internet Telephone

There are two boxed versions of the i2004 available; one with a North American power supply included in the box and one without a power supply. Both versions are packaged with a Telephone footstand, handset, handset cord and Ethernet cable, and Getting Started Card.

The i2004 is currently available in one color – Ethergrey. However, a second color, Charcoal, will be available in December 2002. A product bulletin will be published once this becomes available.

Different from the i2004, this model includes a built in 10/100BASE-T Layer 2 switch to support a co-located PC through shared LAN cabling to the desktop. Other functionality & capabilities are identical between the two models of the i2004, including:

The i2004 Internet Telephone comes preloaded with software from the factory, however an update to the telephone software is done automatically when the set is initialized. The latest telephone software is distributed as part of the IP Line 3.0 system package and is also available from the Meridian Electronic Software Distribution Internet Web site.

The power supply included in the box is a standard North American two prong plug for 117/120 VAC 50/60 Hz. For regions requiring a power supply for a different line voltage/ frequency this may be ordered separately.

i2004 Internet Telephone Boxed (with Power Supply)	NTEX00BA/ B0253074
i2004 Internet Telephone Boxed (without Power Supply)	NTEX00BB/ B0256456

Separately orderable items for use with the i2004

i2004 compatible Headset	A0779338, orderable direct from GNNetcom
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Power Adapters

Power Adapter for i2004 set – 2 pin Euro plug	A0619635
Power Adapter for i2004 set – 3 pin UK/Ireland plug	A0656598

Power Adapter for i2004 set - ANZ	A0647042
Power Adapter for i2004 set - Japan	A0828858

i2050 & USB Audio Kit

The i2050 Software Telephone PC application is delivered to each end-user on an individual CD. The i2050 is easy to install by end-users. Once enabled through a software parameter or port license like the i2004, the i2050 provides access to the same features & functionalities available on the i2004. Use of the USB Audio Kit with the i2050 Software Telephone is required to ensure audio performance and to receive support on this product.

Minimum PC Requirements

- Pentium® Pro 200 MHz
- 128 MB memory (for Windows 2000)
- 64 MB memory (for Windows 98)
- 55 MB free hard-drive space (all languages)
- USB port
- Monitor settings: 16 bit High Color; 800x600 resolution or higher

Supported Operating Systems

- Windows® XP
- Windows® 2000 Professional
- Windows® 2000 Professional Service Pack 1
- Windows® 2000 Professional Service Pack 2
- Windows® 98
- Windows® 98 Second Edition

Note: You must have administrator privileges to install the i2050 Software Phone on Windows 2000. Windows 2000 Power Users can install the i2050 Software Phone if they are granted rights to install with elevated privileges by a Windows 2000 administrator. For information about how to assign elevated privileges to Power Users for installation, refer to your Windows 2000 documentation.

i2050 Order Codes

i2050 Software Telephone – Client application	NTDW83AA / A0873917
USB Audio Kit	NTEX14AA / B0258398

USB Audio Kit consists of:

- USB Audio Adapter
- Enterprise Telephony grade monaural headset
- Lower cordset with quick disconnect
- USB cable
- User guide
- Travel bag

Meridian 1 & Succession CSE 1000 Release 1.1

The IP Line 3.0 Application is supported on Meridian 1 Option 11C Mini, Options 11C, 51C, 61C, 81 and 81C and Succession CSE 1000 Release 1.1.

The Meridian 1-X11 software requirement is Release 25.30 (Release 25.15 in EMEA only) or later, with packages 88 (Digital Set Package – DSET) and 170 (Aries Terminal Package – ARIES) enabled. There are several PEPs that are distributed with the X11 software in the form of an MDCS (Manufacture Delivered Customer Solutions) disk. A single SMC card requires one card slot in a Meridian 1 IPE shelf. Please refer

to the Generic X11 Release 25.30 or Generic X11 Release 25.40 (25.40B) Software Product Bulletin and associated documentation for complete system requirements.

The Succession CSE 1000 software requirement is Release 1.1.

With IP Line 3.0 application and Release 25.40, 25.40B and CSE1000 Release 1.1 it is necessary to purchase and install an Incremental Software Management (ISM) parameters called INTERNET TELEPHONES that licenses the appropriate number of i2004 and/or i2050 Internet Telephones.

For Meridian 1-Internet Enabled, this ISM counter is set to the value ordered by the customer in increments of 1 and will be charged 1 for 1. The default value is zero. It is necessary to increment this counter prior to configuring i2004 telephones. The part numbers for the Internet Telephone software license parameters are:

IP Telephone software parameter – Large System	NTZC82AA
IP Telephone software parameter – Small System (Option 11)	NTZC84AA

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